

Wood-Drilling Apparatus

Field of Invention

The present invention relates to a wood-drilling apparatus.

Background of Invention

Figure 11 shows a first conventional wood-drilling apparatus including a table 1, a wall 6 extending from the table 1, a jig 2 attached to the table 1 and two cylinders 3 put movably on the wall 6. Each of the cylinders 3 is retained in position relative to the wall 6 by means of a screw 4. Each of the cylinders 3 includes an inclined passageway 5 defined therein for receiving a drill. A wooden workpiece includes a front face, a rear face, a bottom and a top. The distance measured from the front face to the rear face will be referred to as "thickness" hereinafter. The wooden workpiece is put between the jig 2 and the cylinders 3. The front face is put against the cylinders 3, and the bottom the table 1. The drills are driven into the wooden workpiece, from the front face to the bottom. Thus, two holes are drilled in the wooden workpiece. Each hole includes a first open end in the front face and a second open end in the bottom. It is desired that the center of the second open end is located at the center of the thickness. However, this requires different pairs of cylinders for wooden workpieces of different thickness since the cylinders 3 cannot be moved vertically.

Figures 12 and 13 show a second conventional wood-drilling apparatus that is identical to the first conventional wood-drilling apparatus except for using a holding device instead of the screws 4. The holding device

1 includes a screw 9 extending through the wall 6, a sleeve 8 for receiving
2 the screw 9 and a rod 7 extending through the sleeve 8 into each of the
3 cylinders 3. A thread is formed on the screw 9. On an internal side of the
4 sleeve 8 is formed a thread engaged with the thread of the screw 9. The
5 cylinders 3 can be moved horizontally along the rod 7, and can be retained
6 in position via engaging the screw 9 with the sleeve 8. Like the cylinders 3
7 in the first conventional wood-drilling apparatus, the cylinders 3 in the
8 second conventional wood-drilling apparatus cannot be moved vertically.

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10 The present invention is therefore intended to obviate or at least alleviate
11 the problems encountered in prior art.

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13 **Summary of Invention**

14 The primary objective of this invention is to provide a wood-drilling
15 apparatus for boring a wooden workpiece with holes in various positions.

16

17 A wood-drilling apparatus includes a table, a wall, at least one cylinder, a
18 jig and at least one drill. The wall is installed on the table. The cylinder is
19 vertically movably mounted on the wall. The cylinder defines an inclined
20 passageway. The jig is installed on the table for pushing a workpiece
21 against the cylinder. The drill is movably inserted in the inclined
22 passageway for drilling the workpiece.

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24 Other objects, advantages and novel features of the invention will become
25 more apparent from the following detailed description when taken in
26 conjunction with the attached drawings.

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2

Brief Description of Drawings

3

The present invention will be described through detailed illustration of
embodiments referring to the attached drawings.

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6 Figure 1 is a perspective view of a wood-drilling apparatus according to a
7 first embodiment of the present invention.

8

9 Figure 2 is an exploded view of the wood-drilling apparatus of Figure 1.

10

11 Figure 3 is a partial cross-sectional view of the wood-drilling apparatus
12 with a drill.

13

14 Figure 4 is similar to Figure 3 but shows a cylinder and a screw of the
15 wood-drilling apparatus in another position.

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17 Figure 5 is similar to Figure 4 but shows the cylinder and the screw in
18 another position.

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20 Figure 6 is a top view of the wood-drilling apparatus.

21

22 Figure 7 is a partial cross-sectional view of the wood-drilling apparatus of
23 Figure 6.

24

25 Figure 8 is a partially cross-sectional view of a wood-drilling apparatus
26 according to a second embodiment of the present invention.

1 Figure 9 is a front perspective view of a wall and two cylinders of the
2 wood-drilling apparatus of Figure 8.

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4 Figure 10 is a rear perspective view of the wall and the cylinders of Figure
5 9.

6 Figure 11 is a conventional wood-drilling apparatus.

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8 Figure 12 is a conventional wood-drilling apparatus.

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10 Figure 13 is a conventional wood-drilling apparatus.

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12 **Detailed Description of Embodiments**

13 Referring to Figures 1 to 7, according to a first embodiment of the present
14 invention, a wood-drilling apparatus includes a table 10, a jig 20 attached
15 to the table 10, a wall 40 attached to the table 10 and two cylinders 30
16 mounted on the wall 40.

17

18 The base 10 defines two apertures 12. The table 10 and the jib 20 will not
19 be described in detail for being conventional. However, the wall 40 and the
20 cylinders 30 will be described in detail.

21

22 Each of the cylinders 30 includes several ribs 31 formed thereon. Each of
23 the cylinders 30 defines a hole 32 and an inclined passageway 34 for
24 receiving a drill 36.

25

26 A rod 43 defines a screw hole 44. The rod 43 is inserted in the holes 32.

1 Thus, the cylinders 30 are smoothly movable along the rod 43.

2

3 The wall 40 includes a vertical slot 41 defined therein, a rib 45 formed
4 thereon, a base 46 extending from a lower portion thereof and two screw
5 holes 47 defined in the base 46.

6 Two screws 49 are driven into the screw holes 47 through the apertures 12,
7 thus securing the wall 40 to the table 10.

8

9 A screw 42 is driven through the vertical slot 41 into the screw hole 44.

10 The cylinders 30 are movable vertically on the wall 40 as the screw 42 is
11 movable in the vertical slot 41. The cylinders 30 can be forced against the
12 wall 40 via engaging the screw 42 with the rod 43. The ribs 31 can be
13 engaged with the rib 45 so as to retain the cylinders 30 in a desired vertical
14 position on the wall 40.

15

16 Referring to Figure 3, one of the ribs 31 of the cylinders 30 is supported on
17 the rib 45 of the wall 40. The screw 42 is securely engaged with the screw
18 hole 44 as best shown in Figures 6 and 7. Thus, the cylinders 30 are
19 retained in position on the wall 40.

20

21 A wooden workpiece 50 includes a front face, a rear face, a bottom and a
22 top. The distance measured from the front face to the rear face will be
23 referred to as "thickness" hereinafter. The wooden workpiece 50 is put on
24 the table 10 and between the jig 20 and the cylinders 30. The front face is
25 put against the cylinders 30, and the bottom the table 10. The drills 36 are
26 driven into the wooden workpiece 50, from the front face to the bottom.

1 Thus, two holes are drilled in the wooden workpiece. Each hole includes a
2 first open end in the front face and a second open end in the bottom. Since
3 the cylinders 30 are vertically movable on the wall 40, it is ensured that the
4 center of the second open end be located at the center of the thickness
5 whatever the thickness may be.

6 The process discussed above referring to Figures 4 and 5 can be repeated to
7 bore the wooden workpiece 50 with more pairs of holes.
8

9 Figures 8 to 10 show a wood-drilling apparatus according to a second
10 embodiment of the present invention. The second embodiment is identical
11 to the first embodiment except for including a face clamp 60 instead of the
12 table 10 and the jig 20. The face clamp 60 includes a first jaw 62 and a
13 second jaw 64. In use, the first jaw 62 is put against the wall 40, and the
14 second jaw 64 the wooden workpiece 50. The wall 40 defines a recess 48
15 for receiving the first jaw 62.
16

17 The present invention has been described through detailed illustration of
18 two embodiments. Those skilled in the art can derive variation from the
19 embodiments without departing from the scope of the present invention.

20 Therefore, the embodiments shall not limit the scope of the present
21 invention defined in the claims.
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